

USSR

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UDC: None

AKHIEZER, I. A., BOLOTIN, YU. L., and SPOL'NIK, Z. A., Physico-Technical Institute of the Ukrainian Academy of Sciences, Kharkov (Fiziko-Tekhnicheskiy institut AN USSR, Khar'kov)

"Coherent Excitation of Oscillation by Particle Fluxes in Ferromagnetics with Low Magnetic Anisotropy"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 15, No 3, March 1970, pp 433-437

Abstract: The authors determine the condition for the coherent excitation of coupled oscillation by particle fluxes in ferromagnetics with low effective anisotropy. The growth increment for the oscillations is also determined. The results show that the growth increment is significantly larger than encountered in ordinary ferromagnetics. This is explained by the fact that long-wave oscillations are excited in crystals with low effective magnetic anisotropy. As a consequence, the coupling parameter b is large and is proportional to the square of the wavelength.

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AKHIYEZER, I. A., BARTS, B. I., BOLOTIN, YU. L.

"Proton-Neutron Correlation in Medium and Heavy Nuclei"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, Vol 11, No 11. 5 June 1970, pp 557-559

Abstract: In the light of possible equality of the chemical potential of neutrons and protons, it is of interest to consider the question of the consequences of proton-neutron (pn) pairing. In this paper it is demonstrated that this pairing essentially changes (by comparison with ordinary pp and nn pairing) the isotopic structure of the correlation functions of the nucleons of the nucleus. The author begins his analysis with the Hamiltonian

$$H' = -\sum_I a_{ps}^{i_1} a_{-ps}^{-i_1} a_{-ps}^{-i_2} a_{ps}^{i_2} :$$

where  $a_{ps}^i$ ,  $a_{-ps}^{-i}$  are the operators of destruction and generation of a nucleon with the pulse p, the spin projection s, and the isospin projection i; and I is the interaction potential, which is nonzero in a narrow energy range near the Fermi range. He 1/2

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USSR

AKHIYEZER, I. A., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 11, 5 June 1970, pp 557-559

then uses the ordinary method of superconductivity theory to obtain expressions for the Fourier components of the correlation functions of the nucleon density ( $\Phi^{(0)}$ ) and isospin density ( $q^{(i)}$ ). It is pointed out that the isotopic structure of the correlation functions obtained differs appreciably from the isotopic structure of the correlation functions in the ordinary (two-fluid) superconducting model of the nucleus in which the correlation of the superconducting type occurs only between particles of one variety. This difference between the quasi-fluid and quasideuteron models of the nucleus can be essentially exhibited in a number of processes of interaction of particles with nuclei. Graphs are presented which clearly show that in the case of pairing of the quasideuteron type the scattering cross section has an essentially different nature than in the case of pairing of the two-fluid type.

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1/2 006

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PROCESSING DATE--20NOV70

TITLE--THE FILE OF ANABOLIC STEROIDS IN THE COMPLEX TREATMENT OF PATIENTS  
WITH SEQUELAE OF POLIOMYELITIS -U-

AUTHOR--(CZ)--ZHUKHEVITSKIY, M.S., BULOTINA, A.YE.

CCOUNTRY OF INFO--USSR

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SOURCE--OKTOBEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 5, PP 44-49

DATE PUBLISHED-----70

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2/2 006

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131326

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANABOLIC STEROID, NEROBOL WAS INCLUDED INOT THE COMPLEX TREATMENT OF 58 PATIENTS WITH SEQUELAE OF POLIOMYELITIS. THE COURSE OF TREATMENT WITH NEROBOL RESULTED IN IMPROVEMENT OF THE MOTOR SPHERE IN 53 PATIENTS. THE GENERAL EFFECT OF NEROBOL WAS MANIFESTED BY IMPROVEMENT OF APPETITE, NORMALIZATION OF SLEEP, INCREASE OF GENERAL Tonus, WORKING CAPACITY, ACCELERATION OF REGENERATIVE PROCESSES. NEROBOL IMPROVED THE METABOLIC PROCESSES IN THE MYOCARDIUM. NO MARKED COMPLICATIONS AFTER USE OF NEROBOL COULD BE OBSERVED. FACILITY: KLINIKI INSTITUTA POLIOMIYELITA I VIRUSNYKH ENTSEFALITOV AMN SSSR NA BAZE 82-Y GORODSKOY KLINICHESKoy BULNITSY, MOSCOW.

UNCLASSIFIED

Acc. Nr: AP0044384

Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1,  
pp 118-128

## INVESTIGATION OF HISTONE STRUCTURE

Ramm, Ye. I.; Birshteyn, T. M.; Bolotina, L. A.;  
Vorob'yev, V. I.; Dmitrenko, L. V.; Nekrasova, T. N.;  
Vol'kenshteyn, M. V.  
*Institute of Cytology and Institute of High-Molecular Weight  
Compounds, Academy of Sciences, USSR, Leningrad*  
*and Institute of Molecular Biology, Academy of Sciences, USSR, Moscow*

The structure of four histone fractions ( $\beta_1$ ,  $\beta_2$  (a),  $\beta_2$  (b),  $\beta_3$ ) has been studied by the methods of optical rotatory dispersion, potentiometric titration and viscometry. The analysis of the data obtained made it possible to draw a conclusion that histones are not globular proteins. The dependence of reduced viscosity on the charge of the molecule and the ionic strength of the solution showed that the dimensions of the histone molecules depend to a large extent upon the forces of electrostatic interaction. This suggests that the histone molecules are conformationally flexible and probably exhibit the conformation of a statistical coil with the incorporation of helical regions.

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The potentiometric titration curves have been obtained for all the histone fractions and have been used for calculating the number of ionizable groups, for determining their pK' and the change in the mean overall charge of the molecules with the pH alteration of the medium. The effect of pH and the ionic strength of the solution on the  $\alpha$ -helix content of various histone fractions was studied. The data obtained were compared and a conclusion was drawn about the non-uniform distribution of the charged groups in the histone molecules. On one hand, histones contain at neutral pH coil shaped sequences enriched with basic amino acid residues with high density of the positive charge and on the other hand, regions capable to form helical structures and containing both acid and basic amino acid residues. A model is proposed describing the structure of histones.

The important differences between histone fractions were shown to exist mainly due to the distribution of the charges along the chain.

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19771001

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UDC 627.8:550.834

MIKHAYLOV, A. D., YASHCHENKO, Z. G., and BOLOTINA, N. M., Engineers

"Experience in the Use of Seismoacoustic Methods for Determination of the Zone of Rock Removal for Foundations of Concrete Structures of the Ust'-Ilimskaya Hydroelectric Power Plant"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 10, Oct 73, pp 17-21

**Abstract:** A description is given of the use of seismic methods for the determination of sectors with the predominant development of horizontal or vertical jointing. Seismic transmission between the joints is used for three-dimensional delineation of isolated zones within the depth of the massif. Seismic observation permits objective and continuous determination of the depth of propagation of intensively fissured rock on the basis of selected profiles, and permits quantitative characterization of the integrity of the rock in a zone of surface destruction.

A combination of geological-engineering and seismoacoustic research should be applied in study of the foundations of large hydraulic-engineering structures. 6 figures. 1 table. 7 references.

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USSR

RAKOVSKIY, V. S., et al., Poroshkovaya Metallurgiya, No 1, Jan 73, pp 88-92  
4-6%, substantially surpass cast and deformed titanium. In the study of increasing density of sintered titanium blanks by upsetting, forging, and extrusion, it was shown that use of a technological scheme, including cold molding and sintering with subsequent hot deformation, makes it possible to achieve a 100% density. The mechanical properties of the sintered samples were evaluated after hot deformation, and it was shown that their strength, ductility, and impact strength were close to that guaranteed by the technical specifications for VT1-00 alloy. 7 figures, 1 table.

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USSR

UDC 535.89

BORISEVICH, N. A., BOLOT'KO, L. M., GRUZINSKIY, V. V., TOLKACHEV, V. A.

"Generation of Coumarin Solutions Under the Excitation of a Flash Bulb"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 148-150

**Abstract:** Nine coumarin derivatives were used to obtain generation and tuning of the generation frequency. The concentration of solutions was 0.1 g/l. A specially designed quartz flash bulb with an evacuated air space ( $\sim 60$  mm) was used. A capacitor bank provided a rise time of the light pulse of the lamp of  $\sim 0.4 \mu\text{sec}$ . The position of the maximum and the width of the generation bands are compared for pumping by the flash bulb and pumping by the second harmonic of a ruby laser. The generation bands under both forms of pumping are wide when a nonselective resonator is used. Due to the slight overlapping of the fluorescence and absorption spectra, the generation bands correspond to the maxima of the fluorescence bands and they are not shifted or only slightly shifted with a change in the concentration of solution. Generation of coumarin derivatives was possible in several solutions. With flash bulb pumping the energy of the radiation generated for 7-sulfomethyl-amino-4-methylcoumarin decreases in the solvents water, ethyl alcohol, and

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USSR

BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1,  
Jan 71, pp 148-150

dimethylformamide. Generation frequency tuning was carried out for a solution of 7-amino-4-methylcoumarin in ethanol, which had a generation band of the shortest wavelength of those known in coumarins. The most intensive part of the generation band was located in the range 438-446 nm. Smooth frequency tuning with simultaneous narrowing of the generation band was accomplished in a wider region, 427-453 nm. Solutions of mixtures of coumarins are suggested to obtain laser radiation in the widest possible spectral region.

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USSR

BOLOENIKOVA, T. N., GUROV, F. I., NERSESOVA, G. N.

"Distribution of Molecules According to Radiative Centers in  
Frozen n-Parafin Solutions"

Leningrad, Optika i Spektroskopiya, Mar 72, pp 531-534

**ABSTRACT:** The concentration of a solution prepared at room temperature determines the total number of molecules in a frozen polycrystalline medium which is distributed according to the different types of radiative centers. In this work an attempt is made to evaluate the concentration of molecules showing thin-line spectra according to the measurement of the quasi-line intensity ( $I_q$ ) in the luminescence spectra of anthracene in n-heptane over a wide range of concentrations. The experimental results obtained show that under conditions of an increased rate of crystallization of the solution the number of molecules corresponding to quasi-bright-line spectra increases and the region of linear dependence of  $I_q$  on the concentration increases. As the rate of crystallization (for example, the freezing of a large volume of the solution) decreases, the method suggested makes it possible to evaluate also the number of molecules which are not isolated by the matrix.

The article includes three figures. There are 6 bibliographic references.

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- 111 -

Acc. Nr.

*AP0049969*Abstracting Service:  
CHEMICAL ABST. 5/70

Ref. Code:

*UR0051*

94912k Concentration dependence of the spectra of frozen n-paraffin solutions. Bolotnikova, T. N.; Gurov, F. I. (USSR). *Opt. Spektros.* 1970, 28(1), 182-3 (Russ.). The dissoln. of aromatic compds. in n-paraffin solns. was carried out at 20°, 0°, -20° and -80°. The satn. of the anthracene soln. in n-heptane or n-hexane at -80° was  $10^{-4}$  or  $5 \times 10^{-5} M$ , resp. The concns. were in accordance with those, at which the diffusion max. in the spectra appeared. The amt. of the analyzed compd. which was in excess in the satd. soln. at a given temp. caused the formation of the aggregates which were responsible for the absorption and emission diffusion spectra. This assumption was proven with the help of fluorescence spectra of frozen n-heptane soln. of anthracene ( $5 \times 10^{-4} M$ ) at 77°K. The formation of the spectrum of the aggregate was connected with the formation of the primary solid phase of the growing crystals of the admixt. in the conditions of deep cooling. The possibility of the creation of the different forms of the spectrum (quasi-line or cryst.) from the different parts of the soln. proved the areal difference of the centers responsible for these spectra.

J. Vachek

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19801907

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Acc. Nr.

AP0049961 - Abstracting Service:  
CHEMICAL ABST. 5/10Ref. Code  
*B* 4R 0051

105585j Effect of ethyl bromide on the probabilities of inter-combinational transitions of aromatic hydrocarbons in frozen n-paraffin solutions. Bolotnikova, T. N.; Sichkar, O. N. (USSR). Opt. Spektrosk. 1970, 28(1), 43-6 (Russ). EtBr (0-50%) was added to the solns. of aromatic hydrocarbons (naphthalene, indene, phenanthrene, and Ph) in n-paraffins. The effect of the heavy Br ion on the spectral properties (fluorescence  $I_F$ , and phosphorescence intensities  $I_P$ , lifetimes, and intercombinational transitions) was detd. at 77°K. The addn. of 0-10% EtBr caused an increase of  $I_P$ ; at EtBr concns. >10%  $I_P$  decreased. The probabilities of the transition from the lower excited singlet state into the metastable  $k's_1 \rightarrow r$  were not affected by EtBr.  $I_F$  of the soln. did not change on EtBr addn. in the tested concn. range. The changes in phosphorescence were due to the changes in the consts. corresponding to the  $k'r \rightarrow s_1$ , and  $k'r \rightarrow s_0$  metastable to ground state transitions. The probabilities of the latter transitions increased by 1 order in the presence of EtBr.

H. Parizkova

REEL/FRAME  
**19801899**

Acc. Nr:

AP0045523

Abstracting Service:

CHEMICAL ABST.

4-70

Ref. Code:  
UR0051

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84553e Effect of ethyl bromide on the quasilinear luminescence and absorption spectra of biphenyl. Bolotnikova, T. N.; Sichkar, O. N.; Shirokikh, O. Yu. (USSR). Usp. Spektrosk. 1970, 23(1), 172-3 (Russ.). The presence of EtBr (I) in frozen solns. of aromatic hydrocarbons ( $C_6H_6$ , PhMe,  $C_{10}H_8$ ) in  $\pi$ -paraffins at 77°K changes their spectral characteristics as a result of the formation of an unstable charge-transfer complex. The spectra for frozen solns. of biphenyl (II) were compared with those for previously studied aromatic hydrocarbons. The addn. of I in the case of II solns. leads to a hypsochromic shift of the singlet-singlet absorption bands and to a certain enhancement of the intensity of the triplet-triplet bands. No changes in the phosphorescence and fluorescence spectra of II were obstd. in the presence of I at 77°K. The uv absorption spectrum of  $10^{-1} M$  soln. of II in I showed a charge-transfer absorption band at 341 nm.

C. Parkanyi

20

REEL/FRAME  
19780491

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USSR

UDC 614.72:615.285.7

SPYNU, Ye. I., IVANOVA, L. N., and BOLOTNYY, A. V., All-Union Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics, Kiev

"Pollution of the Environment with Organophosphorus Pesticides"

Moscow, Gigiyena i Sanitariya, No 10, 1973, pp 75-79

**Abstract:** It is evident from this review of the literature, Soviet and Western, that the extent and duration of pollution of the atmosphere with organophosphorus pesticides depend on the method by which they are applied to the crops, physicochemical properties of the compounds, and climatic conditions and other factors. The degree of persistence of organophosphorus pesticides in plants varies with such physical factors as volatility and solubility in water and organic solvents. The chemical and biological stability of the compounds determine the extent to which they are destroyed by ultraviolet radiation, oxygen and air temperature, and plant enzymes. The method of applying the pesticides, number of applications, rate of expenditure, species of plant treated, etc. are other important factors. The levels of pesticides in soils and their migration vary with the physicochemical properties of the compounds, characteristics of the soil (type, moisture content, pH, microflora, etc.), species of plants growing, and conditions of use.

USSR

UDC: 632.95

BOLOTNYY, A. V.

"Toxicology of the New Organophosphorus Pesticide Gardona"

V sb. Gigiyena primeneniya, tokikol, pestitsidev i klinika otravl. (Pesticides -- Safety Measures in Using, Toxicology, and the Poison Clinic--collection of works), vyp. 9, Kiev, 1971, pp 158-163 (from RKh-Khimiya, No 7, Apr 72, Abstract No 7N562)

Translation: "The acute oral LD<sub>50</sub> doses of 750 mg/kg were obtained under conditions for white mice and rats (half of 1.5 g/kg) of the commercial preparation (10% emulsion and 20%  $H_2O$  content) respectively. The application of wet Gardona to the skin of rabbits was done in a dose of 2000 mg/kg (5% solution) without causing any clinical picture of poisoning, but within a day the sensitivity of the skin increased and the area of the lesion was increased by 50%. After removal of the irritant solution the area of wet Gardona remained, but without visible signs of irritation (area 1.5 times larger than  $H_2O$ ), i.e. 2000 mg/kg. The effect of Gardona on the motor function of the animal was observed after a day, and then the toxic effect disappeared. The activity of the insecticide took place in 24 hr. The author concluded that the insecticidal activity of Gardona is of a similar order of magnitude to that of DDT. Experimental, pp 158-163, (from RKh-Khimiya, No 7, Apr 72, Abstract No 7N562)

USSR

BOLOTIN, A. V., *Gardonia rivenanica*, toxicol. sostitutiv. filtri. et al.  
1971, pp 156-163

was 26% and 9%, respectively; the activity of the enzyme began to decrease on the second day, and by the twelfth day had become normal, and the external signs of poisoning disappeared earlier -- within five days after the beginning of the experiment. The threshold dose was taken as 60 mg/kg, which caused a 41% depression of cholinesterase of the blood. Repeated injection of small doses of wet garcinia powder also cause a reduction in the activity of cholinesterase of the blood as the earlier signs of affliction of the organism. Hexenal sleep was shortened and average body weight was reduced in rats which received sublethal doses of wet garcinia powder over a long time; there was no change in the morphological composition of the blood. F. V. Popov.

USSR

UDC 669.1:658.562

STETSENKO, N. V., BOLOTNYY, V. M., and GORDIYENKO, V. S., Dneprospetsstal' Plant

"Development of Nondestructive Tests at the Dneprospetsstal' Plant"

Moscow, Stal', No 8, Aug 73, pp 756-758

**Abstract:** The equipment for ultrasonic testing of internal defects in blanks and section rolling is briefly described along with eddy current defectoscopy for testing the surface quality of rolling production which is being used or marked for introduction at the Dneprospetsstal' Plant: three-channel units UDTs-18TZ and UDTs-26, immersion units I-1 and UKP-3, automatic defectoscopes ASK-10 and ASK-12, Zond-1 ferrosounding unit, etc. Mass production is tested in automatic lines and small batch output -- on manual and semimechanized tables. Solid nondestructive testing not only increases quality and reliability of metal product output but also makes it possible to actively attack the basic technological process.

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USSR

UDC 621.396.238

BOLTOV, A.A., FIKS, Ya.A.

"Evaluation Of Effectiveness Of Use Of A System Of Transmission Of Discrete Information With Autointerrogation On Lines Of Ionospheric Scatter"

Moscow, Elektrosvyaz', No 12, Dec 1971, pp 20-25

Abstract: The results are discussed of tests of a system of transmission of discrete information with detection and autointerrogation of a distorted combination (ADC) on a line of ionospheric scatter 1500-km long passing through the middle latitudes. During the experiment an apparatus was used which made it possible to conduct simultaneously telegraphic operation with a 7-element code for four channels with a transmission rate in each channel equal to 48 baud. Because time-division multiplexing was used in the system, the rate of telegraphing in the group channel amounted to 192 baud. The authors conclude that use of an ADC system on ionospheric scatter radio lines makes it possible to decrease the number of errors 90--100 times with probabilities of error (by signs) in a channel smaller than  $5 \cdot 10^{-2}$ . The effectiveness of transmission with use of a feedback channel only for transmission of an "interrogation" proves to be above 90 percent with probabilities of errors (by signs) in a channel less than  $2.5 \cdot 10^{-2}$ . Use of an ADC system with 4-channel telegraphic

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BOLOTOV, A. A., FIKS, Ya. A., Elektrosvaz', No 12, Dec 1971, pp 20-25

operation makes it possible to provide the same quality and reliability of communication as that in a system without ADC but with a smaller power of the transmitter and duplex reception. Use of ADC acquires a particular value when communication on an ionospheric line takes place in the presence of persistent noise. The experiment showed that in this case also the ADC system assures the necessary quality of communication with some slowing down of the transmission rate. The authors thank N. N. Shumskiy for his assistance. Received by editors 13 Oct 70. 3 ref. 3 fig. 1 tab.

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- 23 -

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--DESTRUCTIVE HYDROGENATION OF TRIALKYLACYLOXYSILANES -U-

AUTHOR--{051}-BULOTOV, B.A., CRLOVA, T.V., KHARITONOV, N.P., SHENBERG, N.N.,  
BATYAYEV, YE.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHM. 1970, 40(4), 823-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGENATION, ORGANIC SILANE, METAL CATALYST, CARBOXYL  
RADICAL, NICKEL, CHROMIUM OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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STEP NO--UR/0079/70/040/004/0823/0827

CIRC ACCESSION NO--A00123533

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128583

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGENOLYSIS OF RSUB3 SIO SUB2 CR PRIME1 WITH R SELECTED FROM ME, ET OR PR AND R PRIME1 FROM ET, PR, BU, C SUB5 H SUB11 OR C SUB6 H SUB13, AT 200-300DEGREES 20-250 ATM OVER RANEY NI OR NI-CR OXIDE CATALYSTS OCCURS AT THE C-O BOND WITH TRANSFORMATION OCCURRING MAINLY AT THE CARBOXYL GROUP. THE DISILOXANE PRODUCT IS FORMED BY DEHYDRATION OF THE RESULTING R SUB3 SIOH IN CONTACT WITH THE ACID. THE PRIMARY ALC. AND CARBOXYLIC ACID FORMED IN SUCH TRANSFORMATIONS ALSO REACT TO FORM THE APPROPRIATE ESTER. SATD. HYDROCARBONS ARE ALSO FORMED, Owing TO CATALYTIC CONVERSIONS OF THE ALCS. AND ACIDS OVER NI CATALYST AT SIMILAR TO 300DEGREES. THE REACTION ALSO GAVE SOME CO, CO SUB2, CH SUB4 AND VARIOUS UNIDENTIFIED OR TARRY PRODUCTS. RESULTS OF MANY RUNS WERE TABULATED. THUS THE PRODUCTS INCLUDED R PRIME1 H, R PRIME1 CH SUB2 OH, R PRIME1 CO SUB2 H, R PRIME2 CO SUB2 CH SUB2 R PRIME1 AND (R SUB3 SI) SUB2 O. FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.318.435.3

BABAK, O. V., BOLOTOV, B. V.

Magnitnyye usiliteli s analogovoy pamyat'yu (Magnetic Amplifiers with Analog Memory), Kiev, Izdatel'stvo Tekhnika, 1972, 108 pp

Translation: A study was made of the problems of constructing magnetic amplifiers with an analog memory applied in automated control systems. The amplifiers with composite cores -- magnetically hard for recording analog data and magnetically soft for reading it -- are described. Such devices, on amplifying the analog signal, permit reliable storage of it for a very long time. Their schematics and structural designs are presented, and the design characteristics and methods of controlling and improving the storage precision of the standard circuits are discussed. Examples of their prospective application in industrial automation systems are given. The book is intended for engineers and technicians working in the planning, design and operation of automation and remote control systems. There is 1 table, 53 illustrations and a 28-entry bibliography.

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BABAK, O. V., et al., Magnitnyye usiliteli s analogovoy pamyat'yu, Kiev, Izdatel'stvo Tekhnika, 1972, 108 pp

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USSR

BABAK, O. V., et al., Magnitnyye usiliteli s analogovoy pamyat'yu, Kiev,  
Izdatel'stvo Tekhnika, 1972, 108 pp

III. Application of Magnetic Amplifiers with Analog Memory .....	70
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USSR

UDC: 621.318.435.3

BABAK, O. V., BOLOTOV, B. V.

"Magnetic Amplifiers With Analog Memory"

Magnitnyye usiliteli s analogovoy pamyat'yu (cf. English above), Kiev,  
"Tekhnika", 1972, 108 pp, ill. 41 k. (from RZh-Avtomatika, Telemekhanika  
i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7A85 K)

Translation: The problems of constructing magnetic amplifiers with analog memory used in automatic control systems are considered. A description is given of amplifiers with composite cores -- magnetically hard cores for recording analog information, and magnetically soft cores for readout. Devices of this type, by amplifying the analog signal, enable reliable signal storage for a considerable length of time. Circuits and structural diagrams, design particulars, and methods of control and improving accuracy of memory storage in typical circuits are given, and examples are also presented for promising applications in systems of industrial automation. 53 illustrations, 1 table, bibliography of 28 titles.

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USSR

UDC 619.616.988.75-084.47:636.5

LAGUTKIN, N. A., CHERNYSHEV, V. V., BONDARENKO, I. M., KHARLANOV, V. T.,  
POLIKARPOV, B. V., BOLOTOV, B. V., NEZAMETDINOV, P. B., and RUDOBEL'SKAYA, G.A.

"Aerosol Vaccination of Poultry Against Newcastle Disease"

Moscow, Veterinariya, No 1, 1972, pp 54-56

**Abstract:** One-time aerosol vaccination of poultry against Newcastle disease produced strong and lasting immunity in almost 3 million animals of different ages and breeds and had no adverse effect on their productivity. The procedure required fewer workers and considerably less vaccine than for nasal or intramuscular vaccination. For example, some 80,000 to 90,000 5-day-old chicks could be vaccinated per day by three men. In 5- to 12-day old chicks hatched from the eggs of hens inoculated with live vaccine, transovarian primitive IgM interfered with the development of postvaccinal immunity. Such chicks required increased doses of the vaccine or revaccination 12 to 14 days later.

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USSR

UDC: 621.314.26

BABAK, O. V., BIGUN, Ya. F., BOLOTOV, B. V., SITNIKOV, L. S., UTYAKOV, L. L., KHOMOVENKO, M. G., Institute of Electrodynamics, Academy of Sciences of the UkrSSR

"A Pulse Frequency Divider"

USSR Author's Certificate No 251000, filed 20 May 68, published 30 Jan 70  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11,  
Nov 70, Abstract No 11A183 P)

Translation: This Author's Certificate introduces a pulse frequency divider based on a storage core made of a ferromagnetic material with rectangular hysteresis loop. To insure the possibility of regulating the division coefficient, the storage core with its windings is placed between the poles of a core of magnetically hard material. The control winding of this second core is connected to a key coincidence gate through a pulse shaper circuit. A pulse with fixed amplitude and duration is fed to the input of the magnetic divider. Before arrival of the first pulse, the core of the divider is in a state of negative magnetization and the shaper transistor is in the cutoff state. The first and each subsequent pulse increase the level of magnetization of the core up to the saturation point. When this happens, the tran-

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SAEAK, O. V., et al., USSR Author's Certificate No 251000

sistor is switched to the active state and it shapes an output pulse. The circuit then returns to the initial state. The division coefficient of the frequency divider can be varied by changing the magnetization of the magnetically hard core, thus changing the hysteresis loop of the core with rectangular characteristics. One illustration. N. S.

2/2

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USSR

UDC: 681.325.33

GOLIK, S. M., BOLOTOV, B. V., BABAK, O. V., Institute of Electromechanics, Academy of Sciences of the Ukrainian SSR

"A Digital-Analog Device for Shaping Spiral Scanning Voltages"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28, 1970, Soviet Patent No 281018, Class 42, filed 20 Feb 69, pp 150-151

Abstract: This Author's Certificate introduces a digital-analog device for shaping spiral scanning voltages. The unit contains a sawtooth oscillator to which two modulators are connected together with a code-to-voltage converter with a data transmitter for the angle of radar beam rotation. As a distinguishing feature of the patent, precision in shaping the output voltage is improved by adding a voltage-to-pulse duration converter, a master periodic oscillator, two keys, and two adjustment devices. The inputs of the voltage-to-pulse duration converter are connected to the outputs of the master periodic oscillator and the code-to-voltage converter, while the outputs of the voltage-to-pulse duration converter are connected to the modulator inputs through the keys and adjustment devices.

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USSR

UDC 681.34

DOROGOV, A. YE., BOLOTOV, B. V., KIRILLOV, V. G., OGURTSOV, K. A.,  
PRYASHNIKOV, V. M., and REMIZOV, B. A.

"Analog-Digital Decision, Regulating, and Control Computer"

USSR Author's Certificate No 258744, filed 17 Nov 62, Moscow, Otkrytiya  
Izobreteniya Promyshlennyye Obraztsy i Tovarnyye Znaki, No 1, Jan 70,  
p 132

Translation: An analog-digital decision, regulating and control computer which consists of an adder and memory unit, problem input unit, multiplier, input device for positioning coefficients, and control desk is presented. Its special feature is the fact that for the purpose of simplification coupled with increased versatility, the adder and memory units are connected to the outputs of the input device for positioning coefficients and the multiplier. The output of the input device for positioning coefficients is connected to the first input of the multiplier, and the computer input is connected to the second input 1/1

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USSR

UDC 62-233.2

MARININ, V. B., Engineer, and BOLOTOV, B. YE., Candidate of Technical Sciences

"A Stand for Monitoring the Vibration Characteristics of 'Ultrasilent' Radial Ball Bearings"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, pp 40-42

**Abstract:** The SKVP-3 measuring stand was designed for shop and laboratory monitoring of the vibration characteristics of "ultrasilent" radial ball bearings with an inner diameter of 10 to 60 mm. The inner race of the bearing travels at 1500 rpm, the maximum value of the radial load is 50 kg. The kinematic system of the SKVP-3 stand differs from the presently known types by virtue of a minimal number of vibration-interference generators, so that it does not have an intermediate stock, a belt drive, or a clutch. The experiments showed that 1) the level of the spectral components of the vibration interference of stand SKVP-3 is 8 to 10 decibels lower than that of a stand of the Fourth State Bearing Plant, therefore when the vibration characteristics were monitored on stand SKVP-3 bearing 309 satisfied the requirements specified in technical specifications 4477-E for low-noise ball bearings with the "Sh6" index, whereas the bearing received an index of "Sh2" on the stand of the Fourth State Bearing Plant; 2) the SKVP-3 stand has a "minimal" level of vibration interference,

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- USSR"

MARININ, V. B., and BOLOTOV, B. YE, Izvestiya Uchebnykh Zavedeniy, Mashino-stroyeniye, pp 40-42

since the vibration acceleration of the rotating mandrel (without the bearing) does not exceed 26 decibels at a frequency of 50 Hz, with a succeeding rise by 4 decibels for each octave. It follows that stand SKVP-3 provides for high monitoring accuracy of the vibration characteristics of antifriction bearings, and therefore its introduction at bearing plants can considerably increase the percentage yield of serviceable radial ball bearings with an index of "Sh6" and higher. Two figures, 7 references.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--ACETYLENES FROM NATURAL GAS OF THE KOMSOMOL'SKOE DEPOSIT IN A  
PLASMA JET -U-  
AUTHUR--(02)-VALIBEKOV, YU.V., BOLOTOV, G.M.

B

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK TADZH. SSK 1970, 13(3), 27-30

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETYLENE, NATURAL GAS, PLASMA JET, CHEMICAL PLANT EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/2016

STEP NO--UR/0425/70/013/003/0027/0030

CIRC ACCESSION NO--A0112971

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NJ--AT0112971

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 15-KW EQUIPMENT DESCRIBED BY V. AND B. (1969) WAS USED. A STREAM OF 2.5-8.81.-MIN (BASED ON CH SUB4) OF NATURAL GAS (CH SUB4 91.4, C SUB2 H SUB6 2.14, C SUB2 H SUB4 0.06, C SUB3 H SUB8 0.50, ISO-C SUB4 H SUB10 0.68, N-C SUB4 H SUB10 0.17, C SUB5 H SUB12 0.10, O 0.85, AND N 4.75 VOL. PERCENT), AFTER REACTION IN A 101.-MIN PLASMA JET OF AR (50-150 A) AND COOLING TO ROOM TEMP., CONTAINED: H, CH SUB4, C SUB2 H SUB6, C SUB2 H SUB4, C SUB2 H SUB2 (1.03-21.2PERCENT). C SUB3 H SUB8, C SUB3 H SUB6, ISO-C SUB4 H SUB10, N-C SUB4 H SUB10, CH SUB2:C:CH SUB2, MEC TRIPLE BOND CH, CH SUB2:CHC TRIPLE BOND CH, ETC TRIPLE BOND CH, CH SUB2:CH:CH SUB2 AND HC TRIPLE BOND CC TRIPLE BOND CH. TOTAL C SUB2 H SUB2 CONVERSION WAS 96PERCENT AT AN AR:GAS RATIO OF 10:2.5 (WITH PRODUCTION OF 73-8PERCENT H).

FACILITY: INST. KHIM., DUSHANBE, USSR.

UNCLASSIFIED

USSR

UDC 621.3.049.75

NEFEDOV, V. S., YAKUNIN, V. A., BOLOTOV, G. V., KIREYEV, I. V., UMOV, V. S.,  
GRISHCHENKO, G. V., VAYSBURG, A. O.

"A Method of Making Multilayered Printed-Circuit Boards"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 2, Jan 71, Author's Certificate No 290492, division H, filed 18 Dec 67,  
published 22 Dec 70, pp 169-170

Translation: This Author's Certificate introduces a method of making multi-layered printed-circuit boards which is based on stacking the boards followed by interconnection of the current-conducting sections. As a distinguishing feature of the patent, the manufacturing technique is simplified and the resolving capacity of the boards is improved by connecting the outer current-conducting layers to the inner layers, and interconnecting the inner layers, the interlayer connections of the boards being made by current-conducting pins.

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USSR

UDC: 536.421.4+536.421.1

BELAN, S. A., BOLOTOV, I. Ye., and FISHKHEVA, S. N.

"Effect of Impurities on the Crystallization of Selenium Spherolites"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 98-105 (from RZh-Fizika, No. 9, 1971, Abstract No. 9E384)

Translation: The effect of In and Te impurities on the crystallization of thin amorphic Se films is investigated by the method of the diffractional electron microscope for ordinary heating as well as for heating by the electron beam in the microscope. It is found that In changes the relationship of the crystal growth rates on a mica substrate and promotes the formation of needle-shaped crystals later on due to the splitting of crystals transformed into regular sheaf-shaped crystals and spherolites. These cause granulation and increases in the number of crystal seeds without changing their morphology and texture. In the heating of the films by the electron beam with increasing beam intensity, the splitting is accelerated in films with both impurities,  
1/2

USSR

UDC: 539.1.071

ALEKSANDROV, I. A., BOLOTOV, V. I., DEVISHEVA, M. N., DEVI-SHEV, M. I., ISAKOV, V. V., SAMOYLOV, A. V.

"Spark Spectrometer Investigation of a 70-GeV Particle Beam"

Moscow, Atomnaya Energiya, Vol 31, No 6, Dec 71, pp 589-593

**Abstract:** The authors evaluate the accuracy of the theoretical calculations for one of the channels of the accelerator at the Institute of High-Energy Physics by comparison with experimental measurements using a spark spectrometer. The initial statistics were gathered during graduation measurements made in an experiment to detect particles with a fractional charge (quarks). In these measurements, the channel was adjusted to a momentum of 60 or 65 GeV/s with an average angle of emergence  $\theta = 11$  and 0.14 mrad respectively. The magnetic spark spectrometer consists of four neon-filled spark chambers

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USSR

ALEKSANDROV, I. A., et al., Atomnaya Energiya, Vol 31, No 6, Dec 71, pp 589-593

with a gap of 200 mm and a working area of 400 x 400 mm. Between the spark chambers is an SP-12Al magnet. A Minsk-2 computer was used in analyzing the films. Differential cross sections are calculated for production of negative particles in collisions between protons and aluminum nuclei. A comparison of theoretical and experimental beam characteristics shows that the accuracy with which the phase parameters of the beam were calculated is fairly high and technical realization of this accuracy is feasible. The results of calculation of the differential cross sections for negative particle production agree satisfactorily with the data in the literature found by another method. The authors thank Yu. D. Prokoshkin, responsible for initiation of this work; V. I. Kotov for interest in the work; and also Yu. S. Khodyrev and S. P. Denisov for constructive criticism. Five figures, bibliography of eight titles.

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USSR

UDC 621.311.001.1

BOLOTOV, V. V., ARTYUGINA, I. M., BURTSEVA, G. Ye., DOLGOV, P. P.

Voprosy teorii i metody proyektirovaniya energeticheskikh sistem (Problems of Theory and Methods of Power System Design), Leningrad, Nauka Press, 1970, 273 pp, ill., 1 r. 20 k. (from RZh-Elekrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Yel172 K)

Translation: Some problems of the theory and methods of technical-economic design of power systems are discussed. Basic attention is concentrated on analysis of the set of problems of modern development of power systems (construction of the power engineering balances, methods of calculating power reserves, development of the power system structure and the intersystem overhead electric power lines, and so on). The book is intended for a broad class of readers. There are 39 illustrations, 37 tables and a 52-entry bibliography.

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USSR

UDC: 621.391:519.27

BOLOTOV, Yu. N.

B

"Evaluation of the Basic Indices of a Discrete-Message Radio Line"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970,  
sb. 183, pp 110-119 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A11)

Translation: The author discusses the requirements placed on discrete-message  
radio lines. A procedure is outlined for selecting the parameters of lines with  
pulse signals when chaotic pulse interference is present. It is assumed that the  
indices of interference stability (conditional probabilities with respect to the  
message data and false responses) are predetermined. Five illustrations. N. S.

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USSR

Petroleum Processing Technology

UDC 665.521.5

ISAGULYANTS, V. I., BOLOTOVA, G. I., Moscow Institute of the Petrochemical and Gas Industry imeni I. M. Gubkin

"Ashless Lubricating-oil Antioxidant Additives Based on Diesterodithiophosphoric Acids"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 4, Apr 70, pp 925-926

Abstract: Research has been begun in the field of sulfur-, phosphorus- and nitrogen-containing compounds for purposes of finding new ashless lubricating-oil additives possessing high antioxidant and anticorrosive properties. O,O-Dialkyl- and O,O-di(alkylaryl)-S-carbamoylmethyl dithiophosphates with the general formula  $(RO)_2^-PSSCH_2CONH_2$  have been synthesized by the interaction of potassium salts of dithiophosphoric acids with monochloroacetamide. Preliminary tests of the resultant compounds with MT-16 oil show that they have good antioxidant properties.

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1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ASH FREE ANTIOXIDANT ADDITIVES TO LUBRICATING OILS BASED ON  
DITHIOPHOSPHORIC ACID DIESTERS -U-  
AUTHOR--(02)-ISAGULYANTS, V.I., BOLOTTOVA, G.I.

*B*

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHM. (LENINGRAD) 1970, 43(4), 925-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ANTIOXIDANT ADDITIVE, LUBRICATING OIL, PHOSPHORIC ACID,  
PHOSPHATE ESTER, LUBRICANT ADDITIVE, AMINE DERIVATIVE, ORGANIC SULFUR  
COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/2224

STEP NO--UR/0080/70/043/004/0925/0926

CIRC ACCESSION NO--AP0127586

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0127586  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF (RO) SUB2 PSSK  
WITH CLCH SUB2 CONH SUB2 GAVE (RO) SUB2 PSSCH SUB2 CONH SUB2 IR EQUALS  
ALIPHATIC OR AROMATIC HYDROCARBONS IN THE RANGE OF C SUB7-19. THESE  
COMPDS. WERE TESTED AS ANTIOXIDANTS IN LUBRICATING OILS.  
FACILITY: MOSK. INST. NEFTEKHIM. GAZOV. PROM. IM. GUBKINA, MOSCOW,  
USSR.

UNCLASSIFIED

BOLOTCOVA, G.T.

chemistry urban 103

THE THIRD LECTURES IN MEMORY OF I. I. CHERNYAEV<sup>Г</sup>  
[Article; Moscow, Vestnik Akademii Nauk SSSR, Russian, No. 6,  
June 1973, p 193]

In the Institute of General and Inorganic Chemistry  
Academician N. S. Kurnakov of the AS USSR on 29 January pre-  
sented lectures dedicated to the memory of an outstanding  
Soviet Chemist, Academician Ilyi Illich Chernyayev, timed  
for the 80th anniversary of his birth.

In his introductory speech Academician Yu. K. Snytin  
discussed the life path and principal scientific works of I. I.  
Chernyayev, his teaching, research and scientific organi-  
zational activity. Connected with the name of the scientist  
is the discovery of one of the most interesting phenomena of  
the chemistry of the platonic metals -- trans-effect of ligands  
in the coordination sphere of complex compounds. That regulari-  
ty is now widely used in the solution of very varied problems,  
such as the synthesis of new compounds, the separation of vari-  
ous metals, their analysis and refining, and in kinetic, catal-  
ytic and other investigations.

I. I. Chernyayev successfully worked in the area of the  
technology of platinum elements, and also in that of the chem-  
istry and technology of actinide elements. His numerous pupils  
and successors are continuing investigations in those direc-  
tions.

In accordance with the established tradition, one of the  
lectures dealt with the chemistry of platonic metals and the  
other with the chemistry of actinides.

Candidate of Chemical Sciences S. I. Ginzburg, in a re-  
port entitled "Coordination compounds of platonic metals with  
ligands containing oxygen", characterized methods of obtaining  
and the results of systematic study of complex compounds with

Inorganic ligands containing oxygen, for example, sulfates and phosphates of platinum metals and showed that they belong to the class of polymeric compounds, which often contain metal in a different degree of oxidation. Examined in the report were the conditions of coordination of complex chlorides and phosphato-lung hydroxocomplexes of platinum metals with sulfuric and phosphoric acids and oxidation-reduction reactions accompanying the formation of complex phosphates and sulfates of platinum, ruthenium, and rhodium. Study of some catalytic reactions with the participation of sulfites and perchlorates of triuran permitted the author of the report to designate paths of use of complex sulfates of platinum metals in analytical chemistry.

Candidate of Chemical Sciences, G. T. Bolotina presented a report entitled "Coordination compounds of tetravalent uranium". She gave a survey of the contemporary state of the chemistry of tetravalent uranium and the trends of its development. Information about its chemistry until recently was very fragmentary and scanty. Systematic investigations of complex compounds of uranium (IV) with the drawing in of coordination concepts have been conducted in the Institute of General and Inorganic Chemistry under the leadership of D. P. Rybinsk of I. V. Chernyayev, V. A. Golovin and G. V. Slobodchikova. A large number of acid-complex compounds of thorium (IV) have been synthesized and studied -- sulfate, oxalate, carbonate, and also mixed complexes. Ligands in the internal sphere of uranium (IV) have been established and it has been made clear that the course of substitution reactions in compounds of uranium (IV), just as in compounds of thorium (IV), obey laws of mutual substitution of complexes of uranium:  $\text{...Co}^{2+} \rightarrow \text{Co}^{2+} \text{O}^{2-} \rightarrow \text{Co}^{2+} \text{Cl}^{-}$ . Some regularities of the reaction of salts of uranium (IV) with neutral ligands, such as carbamide and tributylphosphine, have been determined. The reporter emphasized success-  
tigion of the chemistry of actinides -- in the investigation of organometallic compounds of uranium (IV). The Investi-

USSR

UDC 546.791.4-386

ELLERT, G. V., BOLOTOVA, G. T., and KRASOVSKAYA, T. I., Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR

"Formation of Uranium (IV) Sulphate Complexes With Tributylphosphine Oxide"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 789-792

**Abstract:** Employing the extraction method it was determined that neutral and acid complexes of uranium (IV) are extracted from sulphate media into benzene solution of tributylphosphine oxide (TBPO) with following TBPO:U ratios: 3:1 in case of neutral complexes, and 2:1 and 1:1 in acid complexes. When complexing with uranium sulphate, TBPO may bind directly to uranium -- in neutral complexes --, or through the protons -- in acid complexes. The U-TBPO bond is comparable strengthwise with the U-SO<sub>4</sub> and TBPO-H bonds. It may be assumed that even in acid complexes the TBPO molecules are located close to the uranium atoms, since on standing they convert easily to the insoluble neutral complex U(SO<sub>4</sub>)<sub>2</sub>·TBPO, in which the TBPO molecules are bound directly to uranium.

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1/2 028

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--DETERMINATION OF THE SOLUBILITY OF MOLYBDENUM CARBONYL IN CARBON  
MONOXIDE AT HIGH PRESSURE -U-

AUTHOR--(04)-KRICHESKAYA, U.D., KREMNEV, V.L., ZELIKHMAN, L.A., BOLOTAVA,  
*K.N.*

CCOUNTRY OF INFO--LSSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 877-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLYBDENUM COMPOUND, METAL CARBONYL, SOLUBILITY, CARBON  
MONOXIDE, HIGH PRESSURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0439

STEP NO--UR/0080/70/043/004/0877/0879

CIRC ACCESSION NO--AP0126192

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70  
CIRC ACCESSION NO--AP0126192  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. WAS DETD. AT 100-280  
ATM. AND 0-30DEGREES. THE CCNTENT OF MO(CO) SUB6 IN COMPRESSED CO ROSE  
WITH INCREASE IN PRESSURE. AN EXPRESSION IS GIVEN FOR THE SOLY. OF  
MO(CO) SUB6 IN CO AS A FUNCTION OF THE CO PRESSURE.

UNCLASSIFIED

USSR

UDC 911.3:613.6(575.1)

DIMANT, I. N., TASHBEKOV, B. U., DAVYDOV, Ya. S., and BOLOTTOVA, M. N.

"Comparative Evaluation of the 3,4-Benzpyrene Content in the Air of Some Uzbekistan Cities"

V sb. Epidemiol. zlokhachestven. opukholey (Tumor Epidemiology -- collection of works) Alma-Ata, "Nauka," 1970, pp 451-454 (from RZh-Meditsinskaya Geografiya, No 4, Abstract No 4.36.146)

Translation: The highest air contamination indicators were found in Angren and Almalyk. The chief cause of 3,4-benzpyrene in the air of Almalyk, Chirchik, Akhangaran and Bekabad is automobile exhaust gases. Heavy smoke contamination was noted in Angren. Great sources of contamination in Angren are the State regional electric power station and the Construction Material Combine (0.54-0.77 Mg/100 m<sup>3</sup> in the summer and 0.92-1.15 M/100 m<sup>3</sup> in the winter). In the area of the Tashkent highway, the level is 0.85 Mg/100 m<sup>3</sup>. The Almalyk winter carcinogen concentration in the industrial zone is 0.35 Mg/100 m<sup>3</sup>; in the residential zone, it is 0.19 M/100 m<sup>3</sup> in summer and 0.25 Mg/100 m<sup>3</sup> in the winter. Corresponding figures for the city highways are 0.94 and 0.98 Mg/100 m<sup>3</sup>. The lowest 3,4-benzopyrene concentrations are in the green belt around Bekabad (0.032 Mg/100 m<sup>3</sup> in the summer and 0.077 Mg/100 m<sup>3</sup> in the winter).

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USSR

UDC: 535.2

BOLOTOVSKIY, B. M. and ISAYEV, R. S.

"Energy Losses of a Charged Particle Moving in a Medium With Slight Dispersion"

Leningrad, Optika i Spektroskopiya, No 4, October 1973, pp 776-778

**Abstract:** In this brief communication, slight dispersion of the medium is defined as a situation in which the square of the extinction coefficient is negligible compared to the first power of the coefficient. Under this assumption, the authors consider a point charge moving uniformly through such a medium. The analysis begins with a formula for the losses in the particle's energy per unit length of its path and theoretically obtains expressions for these losses that are valid for any type of dispersion regardless of its nature. This article is essentially an extension of the Landau and Lifshits book Elektrodinamika sploshnykh sred (Electrodynamics of Solid Media) published in Moscow by Fizmatgiz, 1953. The authors thank V. L. Ginzburg and V. V. Tamoykin for their advice and comments.

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USSR

UDC 535.1+535.225

BOLOTOVSKII, B. M., and GINZBURG, V. L., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"The Vavilov-Cerenkov Effect and the Doppler Effect in the Motion of Sources at a Velocity Greater Than the Velocity of Light in a Vacuum"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 106, No 4, Apr 72, pp 577-592

**Abstract:** The view has been widely held that the Vavilov-Cerenkov effect and the anomalous Doppler effect can be observed only for waves with the refractive index  $n(\omega) > 1$  (the condition  $c/n < v < c$ ) and that corresponding phenomena are impossible in a vacuum. Meanwhile there are faster-than-light sources moving at the velocity  $v > c$ . These sources within wide limits can be regarded on the same bases as "ordinary" sources moving at the velocity  $v < c$ . Faster-than-light sources can generate Vavilov-Cerenkov radiation in any medium, including a vacuum or subject to the condition  $n(\omega) < 1$ . Faster-than-light sources of the general type as a whole possess the same peculiarities which are known for sources moving at the velocity  $c/n < v < c$  (anomalous Doppler effect etc.). An example is

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USSR

BOLOTOVSKIY, B. M., and GINZBURG, V. L., Uspekhi Fizicheskikh Nauk, Vol 105,  
No 4, Apr 72, pp 577-592

the light spots created on a remote screen by a rotating spotlight or beacon.  
If the angular velocity of the beacon is  $\Omega$ , then on a screen whose distance  
from the source is R a spot will travel at the velocity

$$\nu = \Omega R.$$

The beacon model is now universally adopted for pulsars, with the velocity of  
a spot on earth for all known pulsars exceeding the velocity of light c.

From the standpoint of radiation theory, an important difference be-  
tween faster-than-light sources ( $\nu > c$ ) and those which are slower than  
light ( $\nu < c$ ) is the fact that a faster-than-light source cannot consist of  
an individual "elementary" particle and therefore always is extended. It is  
the dimensions of a faster-than-light source which primarily determine,

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USSR

BOLOTOVSKIY, B. M., and GINZBURG, V. L., Uspekhi Fizicheskikh Nauk, Vol 106,  
No 4, Apr 72, pp 577-592

especially during radiation in a vacuum, the short-wavelength limit of the radiated frequency spectrum. Therefore, the use of faster-than-light sources say for the generation of x-rays would seem unlikely. However, it would not be surprising to find some interesting applications for faster-than-light sources in the future. In addition, faster-than-light sources can occur in astronomy. Regardless of such possibilities, there is definite physical interest in the radiation of faster-than-light sources of electromagnetic and gravitational waves (and possibly also neutrinos) and all related questions.

The present article is based on a paper presented at a scientific session of the Department of General Physics and Astronomy and the Department of Nuclear Physics of the Academy of Sciences USSR on 25 November 1971.

3/3

Veterinary Medicine

USSR

BOLOTSKIY, I. A., Candidate of Veterinary Sciences; CHULOVSKIY, I. K., Senior Scientific Associate, and ARABYAN, A. M., Krasnodar Scientific Research Veterinary Station, Omsk Scientific Research Institute of Infections with Natural Foci, Ministry of Health RSFSR, and Georgian Zooveterinary Teaching Research Institute

"The Epizootiology of Leptospirosis"

Moscow, Veterinariya, No 2, 1971, pp 65-68

**Abstract:** Leptospirosis in Krasnodar kray is most severe among cattle, and is usually caused by *L. hebbomadis*, although antibodies to *L. saxkoebing*, *L. wolfii*, *L. hardjo* and *L. sejroe* are also frequently recorded. Nearly half of the murine rodents trapped in farms and forests of this area had antibodies to various serotypes of *Leptospira*. Epidemiological survey of animals in Western Siberia using the microagglutination and lysis test showed infection of pigs, horses, deer, yaks and marals with 11 types of *Leptospira*. The disease can occur at any time of year, but is most common from April to October. The most common serotypes of *Leptospira* in Gruzin-skoy SSR are *L. tarassovi*, *L. pomona*, and *L. icterohaemorrhagiae*.

1/1

USSR

UDC: 621.317:621.397.132(088.8)

KRIVOSHEYEV, M. I., DVORKOVICH, V. P., PLAKSYUK, S. G., BOLOVINTSEV, Yu. M.

"A Device for Measuring the Parameters of Color Television Test Signals"

USSR Author's Certificate No 263699, filed 5 Aug 68, published 15 Jun 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G164 P)

Translation: This Author's Certificate introduces a device for measuring the parameters of color TV test signals. The device contains a control module, a subcarrier frequency reference signal oscillator, upper and lower frequency filters, and an analog-digital converter. For purposes of large-scale automation of measurements of the parameters of test signals coded in the SECAM, NTSC or PAL systems with simultaneous output of the results of measurements on different chromatic bands or in adjacent lines in digital form, the analog-digital converter is connected to the lower frequency filter through a module for analog processing of the brightness signal, and to the upper frequency filter through the module for analog processing of chrominance signal levels which is connected in parallel with a module for FM or PM conversion of the chrominance signal. The conversion module is controlled by a recognition circuit of the coding type.

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Television

USSR

UDC 621.937:621.396.4(088.8)

BOLOVINTSEV, YU. M., GAMORA, V. A.

Device for Automatic Control of Nonlinear Distortions in Television Channels"

USSR Author's Certificate No 275181, Filed 11 Mar 68, Published 26 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G175P)

Translation: The patented device contains a logical processing and display unit, a master clock, a control zone shaper and a comparison module. In order to improve the control accuracy, a controllable amplifier has been introduced into the device. The output of this amplifier is connected via a limiter to one of the inputs of the control trigger. The output of the control trigger is connected via the comparison module and the step voltage shaper to the input of the controlled amplifier.

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USSR

B

UDC 621.376.53(088.8)

BOLOVINTSEV, YU. M., MAREYN, R. L.

"Peak Detector with a Discharge Circuit"

USSR Author's Certificate No 251023, Filed 8 Aug 68, Published 2 Feb 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D49P)

Translation: This author's certificate introduces a detector consisting of a diode, a storage capacitor, an output emitter repeater and a discharge semiconductor triode included with respect to a circuit with a common emitter. In order to improve the accuracy of operation of the device and increase the thermal stability, the collector of the discharge transistor is connected to the collector of the output emitter repeater.

1/1

USSR

UDC: 621.372.061:538.56

BOLOZNEV, V. V., POL'SKIY, Yu. Ye.

"On Peculiarities of Synchronizing a Self-Excited Oscillator by a Frequency Modulated Signal"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970,  
vyp. 122, pp 86-90 (from RZh-Radiotekhnika, No 2, Jan 71, Abstract No 1A146)

Translation: The paper presents the results of an experimental study of the width of the lock-in region of an oscillator as a function of the frequency  $\gamma$  and modulation index  $\psi$  of the oscillator and the external signal. It is shown that the oscillator may be synchronized by one of the side components of the external signal. In this case, a number of lock-in regions arise with oscillations in each of them in accordance with the law

$$x(\tau) = B \sum_{m=0}^{\infty} f_m(\psi) \cos[(\kappa_p + m\gamma_1)\tau + \phi_m],$$

where  $B$  is the amplitude of the locked-in oscillator;  $\kappa_p = \kappa + p\gamma_2$ ;  $p$  is the number of the lock-in region;  $m = \pm 1, \pm 2, \dots, \pm \infty$ ;  $\phi_m$  is the phase of the  $m$ -th side component. It is noted that the width of the  $p$ -th region of lock-in depends on  $\psi_1$ ,  $\gamma_1$ ,  $\psi_2$  and  $\gamma_2$ . By fixing  $\psi_1$ ,  $\gamma_1$  and  $\gamma_2$ , the  $p$ -th

USSR

UDC 541.124-16+541.64

BOL'SHAKOV, A. I., MIKHAYLOV, A. I., BARKALOV, I. M., and GOL'DANSKIY, V. I.,  
Institute for Physical Chemistry, Academy of Sciences SSSR, Moscow

"Low-Temperature Radiation Mechanism for the Polymerization of Acrylic Acid  
in an Alcohol Case, Studied by ESR and Calorimetry"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 2, 1972, pp 379-382

**Abstract:** An attempt was made to optimize conditions to favor the lengthening of the main polymer chains and to suppress the formation of intermediate-size radicals. Since the heat content of the monomers is different from that of the polymers, changes in the heat content, as measured in a calorimeter, were used to follow the reaction products at different temperatures, radiation doses, and for two different states of the matrix. At about 100° K, the yield of the polymer was 80%. Increasing the temperature of 108° resulted in a large reduction of yield. At this point also, the ESR spectra indicated a significant increase in the mobility of the large radicals. Differences in the kinetics appear between reactions performed in the frozen (solid) alcohol matrix and those which took place in a supercooled (liquid) matrix.

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USSR

UDC 621.371.552.3:551.463.7:558.3

AFANAS'YEV, K.L., POL'SHAKOV, E.V., GARNAKER'YAN, A.A., LEPENDIN, L.F., LOBACH,  
V.T., TIMONOV, V.V., CHEREPANTSEV, S.F.

"To The Problem Of Measuring The Height Of Sea Waves By The Radar Method From  
Aircraft"

Tr. Taganrog. radiotekhn. in-ta (Works Of The Taganrog Radio Engineering  
Institute), 1971, No 22, pp 148-158 (from RZh: Radiotekhnika, No 2, Feb 72,  
Abstract No 2G15)

Translation: The theoretical bases are stated of the radar method of measuring  
the height of waves. It is shown that in order to increase the precision of  
measurement it is necessary to have a tunable transmitter or some fixed radiat-  
ion frequencies (3 are sufficient). A measuring unit is described, constructed  
on the basis of a pulse radar station of the meter range; technical data are  
presented. An analysis of the results obtained during flight tests shows that  
the discrepancy between these results and the data obtained with the aid of a  
wave graph does not exceed 10--12 percent. The defect of the method is the  
impossibility of determining the character of the waves and the length of a wave.  
1 ill. 2 tab. 4 ref. N.S.

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Acc. Nr:

APC055912Abstracting Service:  
CHEMICAL ABST. 6-70

Ref. Code:

4R 0065  
*KB*

113450b Composition and structure of the solid formed during the oxidation of reactive fuels. Bol'shakov, G. F. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 10(2), 40-53 (Russ.). The compn. and structure was studied of the solid phase formed during the oxidn. of T-1 and TS-1 fuels. The fuels, d<sub>40</sub> 0.8197 and 0.7760; b. 144-280° and 138-230°, mean mol. wt. 148.0 and 140.6, resp., contain n-alkanes 6.0, 29.2; total isoalkanes and alkylcyclopentanes 27.1, 29.5; cyclohexane homologs 40.3, 18.5; Decalin homologs 4.7, 1.8; monocyclic aromatics 10.5, 15.6; condensed aromatics 8.4, 3.7; unsatd. hydrocarbons 1.32, 0.20; org. S. compds. from aromatic fractions 0.38, 1.5; and resinous substances 0.372 and 0.246%, resp. An earlier method (Davydov and B., CA 55: 3045c) utilizing an O atm. was used in stability studies. Kinetics of formation of solid-phase particles was detd. by a light-scattering method (B. and Litvinov, CA 69: 29017w). The amt. of solid phase formed reached a max. at 160-80° (which temp. corresponded to max. Cu corrosion); at temps. above 180°, a decrease in absorbance and acidity was observed. The O uptake was small, e.g. at 150° it was 6 ml O/20 ml fuel. On heating the fuels at 1°/min to 150°, the nos. of solid particles formed in T-1 and TS-1 were 13 and 17 × 10<sup>9</sup>, resp., the radii of the particles being 910 and 1050 Å, resp.

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19841240

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AP0055912

At higher temps., the no. and the size of particles continued to rise at a lower rate. When the oxidn. was terminated, the size of the particles continued to increase although the temp. decreased and the no. of particles decreased. Results of ir and uv studies of the solid phase formed at various stages of the oxidn., esp. of the changes in compn., are reported. In the absence of contact with metals, the solid phase formed on oxidn. consisted of amorphous substances, while the ppt. and deposits formed on oxidn. in contact with metals consisted of both amorphous and cryst. components. In contact with Cu, the cryst. components formed at 140-60° consisted of CuSO<sub>4</sub>.5H<sub>2</sub>O, smaller amts. of CuSO<sub>4</sub>, (RSO<sub>3</sub>)<sub>2</sub>Cu, (RCOO)<sub>2</sub>Cu, CuCO<sub>3</sub>.n-Cu(OH)<sub>2</sub>, and traces of Cu oxides and sulfides. The max. amt. of sulfates was formed at 160°; it drastically decreased at higher temps. The amt. of Cu sulfides in deposits from TS-1 increased considerably with increasing temp., and >170°, Cu sulfides comprised the bulk of the cryst. components. The resinous amorphous part of the solid phase resulted from deep oxidative polymn. and from condensation of the products of the oxidn. of org. compds. Comparison of ir spectra of solid phases formed in TS-1 fuel under lab. conditions with those formed on pumping in an app. modelled on an aircraft fuel system indicated similarities in the compn. and structure. Andrew L. Grochowski

2/2

19841241

1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--FORMATION OF A SOLID PHASE DURING THE OXIDATION OF SULFUR  
CONTAINING JET FUELS -U-  
AUTHOR-(02)-BOLSHAKOV, G.F., KAPLAN, Z.G.

COUNTRY OF INFO--USSR *B*

SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(1), 56-62

DATE PUBLISHED-----70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--ENTROPY, ORGANIC SULFUR COMPOUND, OXIDATION, JET FUEL,  
MERCAPTAN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1638

STEP NO--UR/0152/70/013/001/0056/0062

CIRC ACCESSION NO--AT0118617

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0118617

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDN. PRODUCTS OF THE TITLE FUELS COAGULATED AND PPTD. THE ENTROPY OF THE COLLOIDAL PARTICLES OBTAINED BY OXIDIZING FUEL CONTG. PHS, (PHS)SUB2, AND PH SUB2 S INCREASED MORE STRONGLY THAN THAT CONTG. DIOCTYL DISULFIDE AND OCTYL MERCAPTAN. THE MAX. TENDENCY TO ASSOCN., COAGULATION, AND FORMATION OF A SOLID PHASE APPEARED WHEN THE HYDROCARBON SKELETON OF THE S AND O CONTG. OXIDN. PRODUCTS HAD A DIFFERENT STRUCTURE FRM THAT OF THE HYDROCARBON MEDIUM. PARAMETERS OF THE COAGULATION AND EFFECT OF THE S COMPOS. ARE PRESENTED. FACILITY: VOEN. AKAD. TYLA TRANSP., USSR.

UNCLASSIFIED

USSR

UDC 621.762.002.5(088.8)

BOL'SHAKOV, G. P.

"Powder Press Apparatus"

USSR Authors' Certificate No 276712, Cl. 49h, 11; 49 i, 16 (B21 j 13/00, B 21 k 23/00), filed 29 Jan 69, Published 22 Oct 70 (from FZh-Metallurgiya, No 3, Mar 71, Abstract No 3G476 P)

Translation: The apparatus contains a shaft with flanges. In order to lengthen the powder capture zone, the apparatus is equipped with a ring placed eccentrically to the shaft between its flanges. For compacting of pressed powder the inner surface of the ring is made with ribs.

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1/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--RESISTANCE OF THIN BANDS TO DEFORMATION IN IMPULSE LOADING -U-

AUTHOR--(02)-BOLSHAKOV, G.P., BELYAYEVA, I.YE.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVODSTVO, NO. 2, 1970, PP  
10-11  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--BRASS, STEEL, ALLOY, MATERIAL DEFORMATION, ELECTRODYNAMICS,  
CYCLIC LOAD TEST, LONGITUDINAL WAVE, TRANSVERSE WAVE/(U)L62 BRASS,  
(U)KH18N9T STEEL, (U)AMTS ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1985/0262

STEP NO--UR/0182/70/000/002/0010/0011

CIRC ACCESSION NO--AP0100773

UNCLASSIFIED

2/2 031

CIRC ACCESSION NO--AP0100773

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER DESCRIBES EXPERIMENTS PERFORMED TO TEST SOME ASPECTS OF PREVIOUS ARTICLES PROPOSING A METHOD OF DETERMINING THE DYNAMIC YIELD POINT THROUGH ELECTRODYNAMIC SHOCKS ON A METAL BAND FIXED AT BOTH ENDS. DETAILS OF THE EXPERIMENTS ARE GIVEN. AS A RESULT OF THESE SHOCKS, LONGITUDINAL PRESENT PAPER ARE CONCERNED WITH THE CASE IN WHICH THE VELOCITY OF THE LONGITUDINAL WAVE EXCEEDS THAT OF THE TRANSVERSE WAVE. THEY SHOW THAT FOR MANY MATERIALS IMPORTANT IN PRACTICE, THIS INEQUALITY OF LONGITUDINAL AND TRANSVERSE VELOCITIES OCCURS. RESULTS OF THOSE EXPERIMENTS ARE GIVEN. ALSO GIVEN IS A SYSTEM OF EQUATIONS DESCRIBING THE MOTION OF THE THIN BAND UNDER THE CONDITION OF THE ABOVE INEQUALITY IN VELOCITIES. THE METALS INVOLVED IN THE EXPERIMENTS WERE BRASS L62, STEEL KH18N9T, AND AN ALLOY IDENTIFIED AS AMTS.

UNCLASSIFIED

USSR

UDC: 51

BOL'SHAKOV, I. A., BRIKKER, V. I.**"The 'Quasidiagonal' Problem of Quadratic Integer Programming"**

Moscow, Mat. metody resheniya ekon. zadach--sbornik (Mathematical Methods of Solving Economics Problems--collection of works), No 3, "Nauka", 1972, pp 137-145 (from RZh-Kibernetika, No 5, May 73, abstract No 5V655 by Yu. Finkel'shteyn)

Translation: The paper discusses the problem of minimizing the quadratic form on an integer lattice

$$f(n) = (\tilde{n} - n)^T \Phi (\tilde{n} - n) \rightarrow \min. \quad (1)$$

Here  $\Phi = (\Phi_{ij})$ ,  $i, j=1, \dots, p$ , is a given positive definite symmetric matrix;  $\tilde{n} = (\tilde{n}_i)$ ,  $i=1, \dots, p$ , is a given vector of coefficients, which in the general case are integers;  $n = (n_i)$ ,  $i=1, \dots, p$ , is the sought integer vector,  $n_i = 0, 1, 2, \dots$ . An example is given of economic interpretation of the given problem. Three methods of minimizing quadratic form (1) are considered, the first of which is based on the principle of dynamic programming, the second -- on using the properties of local minima, and the third is a combination

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USSR

BOL'SHAKOV, I. A., BRIKKER, V. I., Mat. metody resheniya ekon. zadach,  
No 3, "Nauka", 1972, pp 137-145

of the first two. The proposed methods, while not universal, are a vast improvement over simple trial and error when the matrix  $\Phi$  is quasidiagonal, i. e.

$$\Phi_{ij}=0 \text{ if } |i-j| > m, \quad (2)$$

where  $m$  is some small integer,  $1 \leq m \leq p$ . A numerical example is considered.

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USSR

BOL'SHAKOV, I. A.

"Statistical Estimates of Individual Parameters of Frequency Dictionaries"

Nauch.-Tekhn. Inform. Sb. Vses. In-t Nauch i Tekhn. Inform. [Scientific and Technical Information. Collection of All-Union Institute of Scientific and Technical Information], 1972, Ser 2, No 11, pp 21-26 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V632, by the author).

Translation: The method of maximum likelihood is used to synthesize optimal algorithms for estimation of an individual parameter of ranked distributions, widely used in information science. Estimates are performed based on a limited independent sample, i.e., limited to "text" in the form of unrelated sequences of "words." The limiting possible quality of synthesized algorithms is studied. As an example, the change in scale parameters of Zipf distributions, exponential distributions, as well as parameters reflecting the bend point in a Zipf distribution are studied.

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USSR

UDC: 8.74

BOL'SHAKOV, I. A.

"Acquisition of New Words Independently of Those Appearing in a Homogeneous Text"

Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.  
(Scientific and Technical Information Collection. The All-  
-Union Institute of Scientific and Technical Information),  
1972, ser. 2, No 3, pp 7-11, 39 (from RZh-Kibernetika, No 8,  
Aug 72, Abstract No 8V701)

Translation: The paper discusses an infinite text consisting of statistically independent words appearing in the text in accordance with discrete probability distribution. Acquisition of a word is assumed if it has been encountered more than m times. The rate G is calculated for the acquisition of new words as there is an increase in the length K of the text which has been read. The nonmonotonic behavior of G(K) is studied. The relationships found are compared with the Schroeder hypothesis on principles governing completion of a thesaurus. Author's resumé.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SIMULATION OF ABRASIVE WEAR OF THE INTERNAL SURFACES OF LIGHT ALLOY  
DRILL PIPES -U-  
AUTHOR--(03)-KULYABIN, G.A., BOLSHAKOV, I.F., KOPYLOV, V.YE.  
COUNTRY OF INFO--USSR   
SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(2), 31-4  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CELLULOSE, ALLOY, WELL DRILLING MACHINERY, WEAR  
RESISTANCE/(U)CM CELLULOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1636

STEP NO--UR/0152/70/013/002/0031/0034

CIRC ACCESSION NO--AT0118615

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AT0118615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WEAR OF TURBODRILL PIPES WAS MAINLY DUE TO THE ABRASIVE EFFECT OF THE SAND PARTICLES INCLUDED IN THE DRILLING FLUID. A WEAR OF 1 MM OF THE INTERNAL DIAM. WAS ATTAINED AFTER 1100-50 HR WITH WATER, CONTG. 2PERCENT SAND AT FLOW VELOCITY 2.7 M-SEC. ADDN. OF 0.3PERCENT CM CELLULOSE BASED ON THE DRILLING FLUID REDUCED THE WEAR BY 50PERCENT. A MORE THOROUGH REMOVAL OF SAND WAS RECOMMENDED. A SCHEME OF THE EXPTL. INSTALLATION AND RESULTS ARE PRESENTED.  
FACILITY: TYUMEN. IND. INST., TYUMEN, USSR.

UNCLASSIFIED

USSR

UDC 546.719-386:542.61

BOL'SHAKOV, K. A., Corresponding Member Academy of Sciences USSR; SINITSYN, N. M., TRAVKIN, V. F., and ANTIMONOVA, L. N., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Moscow

"A Study of the Interaction of Hexahalorhenates (IV) with tri-n-Butylphosphine Oxide in Extraction Processes"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 3, 1971, pp 614-617

**Abstract:** The extraction with  $\text{Bu}_3\text{PO}$  in  $\text{CCl}_4$  of  $[\text{ReCl}_6]^{=}$  and  $[\text{ReBr}_6]^{=}$  from 0.002 M solutions of  $(\text{NH}_4)_2[\text{ReCl}_6]$  and  $(\text{NH}_4)_2[\text{ReBr}_6]$  in HCl was studied at equal volumes of the aqueous and organic phase. The maximum degree of extraction was at an HCl concentration of 3-4 M. With increasing concentrations of  $\text{Bu}_3\text{PO}$  in  $\text{CCl}_4$  from 0.01 to 0.05 M, the coefficient  $D_{\text{Re}}$  of the distribution of Re between the organic and aqueous phase at 1 M HCl increased from 1.5 to 150. This indicated that more than 99% of the Re could be extracted in one operation.  $D_{\text{Re}}$  was higher for the Br than Cl complex. In the extraction of the Cl complex, the composition of the compound extracted was  $(\text{Bu}_3\text{PO})_3(\text{H}_3\text{O})_2[\text{ReBr}_6]$  (II). I and II, a light-green and yellow-brown compound, respectively, dissolved easily in polar organic solvents (alcohols,

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USSR

BOL'SHAKOV, K. A., et al, Doklady Akademii Nauk SSSR, Vol 192, No 3, 1971,  
pp 614-617

acetone,  $\text{HCCL}_3$ ) and less readily in non-polar solvents (benzene, hexane,  $\text{CCl}_4$ ). These compounds were stable in the air up to  $230-40^\circ$ . The molar electric conductivity of I and II in solutions of various concentrations in  $\text{MeOH}$ ,  $\text{EtOH}$ , and  $\text{BuOH}$  was determined. It increased in the order  $\text{BuOH} < \text{EtOH} < \text{MeOH}$ , but there was no complete dissociation into three solvated ions even in  $\text{MeOH}$ . Solutions of I in benzene did not conduct. The electronic spectra of I and II corresponded to those of the organic phases obtained on extraction of the ammonium hexahalorhenates with  $\text{Bu}_2\text{PO} + \text{HCCL}_3$ . In the IR spectra of I and II, the absorption band of valency oscillations of  $\text{P=O}$  was displaced towards longer wavelengths vs. that for  $\text{Bu}_2\text{PO}$  because of a redistribution of electron density associated with the formation of the coordination compounds. The results obtained and data from the literature indicated that the following equilibrium is established during the extraction:  $3 \text{Bu}_2\text{PO}_{\text{org}} + (\text{NH}_4)_2/\text{ReHal}_6/\text{aq} + 2\text{HCl}_{\text{aq}} + (x+2)\text{H}_2\text{O} \rightleftharpoons \left\{(\text{Bu}_2\text{PO})_3 \cdot (\text{H}_2\text{O})_2(\text{H}_2\text{O})_x \cdot / \text{ReHal}_6/\right\}_{\text{org}} + 2\text{NH}_4\text{Cl}$ .

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USSR

B

UDC 542.61/66.061

BOL'SHAKOV, K. A., Corresponding Member of the Academy of Sciences USSR, and  
KOROVIN, S. S., Doctor of Chemical Sciences

"Use of Extraction During Separation and Parting of Rare Metals"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev,  
Vol 15, No 4, 1970, pp 380-387

**Abstract:** Some of the more interesting practical questions of the parting of rare elements which are similar in properties are considered, and prospects for the further development and application of extraction in the technology of rare elements are discussed. Rubidium, cesium, gallium, indium, scandium, yttrium, and lanthanides are used as examples in showing that extraction can be used to solve complex technical problems. The article considers basic patterns of extraction behavior and the formation of coordination compounds. The behavior of metals in aqueous and organic solutions is explained from the viewpoint of the peculiarities of atomic structure. The qualitative characteristics of the extraction of metals by extractants of different classes are given. It is shown that, in spite of considerable successes in the practical use of extraction, not all possibilities of the extraction processes have been utilized. Further success

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USSR

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BOL'SHAKOV, K. A., et al, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev, Vol 15, No 4, 1970, pp 380-387

will be tied to the expansion of works related to theory, the search for new extractants, the use of mixtures of electrolytes and mixtures of extractants, the development of the processes of recovery of rare metals with organic solvents from pulp and solid products, and the use of organic solutions for producing compounds.

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- 30 -

1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CALCULATION OF KINETIC COEFFICIENTS DURING THE SCATTERING OF  
CURRENT CARRIERS OF IONIZED IMPURITIES -U-  
AUTHOR--(03)-BOLSHAKOV, L.P., NASLEDOV, O.N., FILIPCHENKO, A.S.

COUNTRY OF INFO--USSR

B

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 789-92

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CARRIER SCATTERING, HALL MOBILITY, THERMAL EMF, FERMI LEVEL,  
SEMICONDUCTOR IMPURITY, KINETIC THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/1969

STEP NO--UR/0181/70/012/003/0789/0792

CIRC ACCESSION NO--AP0105043

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0105043  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCES WERE COMPARED OF DIFFERENTIAL THERMAL EVF., HALL MOBILITY, AND THE TRANSVERSE NERNST ETTINGSHAUSEN COEFF. ON THE POSITION OF THE FERMI LEVEL, CALCD. WITH EXACT CONSIDERATION OF THE DEPENDENCE OF THE SCREENING PARAMETER ON THE ENERGY AND IN THE APPROXN. OF WEAK AND STRONG DEGENERACY. NEGLECTING THE ENERGY DEPENDENCE OF THE SCREENING PARAMETER CAN LEAD TO FORBIDDOINGLY LARGE ERRORS IN THE CALCN. OF THE KINETIC COFFS. IN THE CASE OF SCATTERING OF CURRENT CARRIERS ON IMPURITY IONS.  
FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.791.002:621.3.083.8.002.2

BOL'SHAKOV, M. V., Candidate of Technical Sciences, and ZUDOV, N. I.,  
Engineer

"Technology of Welding Temperature Sensors"

MOSCOW, Svarochnoye Proizvodstvo, No 6, 1971, pp 44-46

**Abstract:** It is suggested that the elements of temperature sensors be connected by welding in a vacuum, using a technological process which eliminates the presence of intermediate material. A technology has been developed for welding copper-constantan-copper sensors with minimal plastic deformation. The kinetics of formation of the joint in pressure welding of this trimetal are studied. Three stages are determined in the formation of the welded joint with optimal properties. Electron microscope studies have established the optimal width of the diffusion zone, which has no influence on the operating characteristics of the sensor. It is demonstrated that increasing the specific pressure in welding reduces the duration of the stage of formation of the physical interface, but does not reduce the total welding time and sharply increases plastic deformation.

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USSR

UDC 678.742.4:66.018.86

TIKHOMIROVA, N. S., BOL'SHAKOV, N. I., SERENKOV, V. I.

"Effect of Additives on the Radiation Decomposition of Polyisobutylene"

Moscow, Plasticheskiye Massy, No 1, 1973, pp 18-19

**Abstract:** A study was made of the effect of certain organic additives on the decomposition of polyisobutylene under the effect of cobalt radiation in the presence of oxygen. Aromatic compounds with conjugated rings, phenols and aromatic thio-compounds in the form of especially pure reagents and chemically pure compounds were used as the additives.

On irradiation of polyisobutylene with effective additives (azobenzene,  $\alpha$ -dinitrophenol and p-aminophenol) their protective effect varies as a function of the absorbed dose. With an irradiation dose of one mrad, the effectiveness of protecting the polyisobutylene is maximal, and with a further increase in the dose to 3 mrad the protection becomes weaker. The effect of the various investigated additives on radiolysis of polyisobutylene was analyzed leading to the following groupings: phenols (ionol, p-aminophenol,  $\alpha$ -dinitrophenol) and azobenzene which protect the polymer chains from breaking in the presence of irradiation. Their protective functions are connected with deactivation of the active radiolysis products.

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TIKHOMIROVA, N. S., et al., Plasticheskiye Massy, No 1, 1973, pp 18-19

Captax and altax. These additives promote radiation decomposition of polyisobutylene (under the effect of irradiation in the absence of oxygen of the air).

Mercaptans ( $RSH$ ) and disulfides ( $RS-SR$ ) are compounds which easily participate in the reaction of the chain transfer:



p-aminophenol and diphenylthiourea. These compounds actively affect the process of radiation-oxidation decomposition of polyisobutylene, suppressing them significantly at comparatively low concentrations (up to 1% by weight).

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USER

UDC: 621.321.772(088.8)

ZEMLYAK, A. P., BOBRIN, V. Ye., BOL'SHAKOV, O. V.

"A Device for Discrete Measurement of Signal Phase"

USSR Author's Certificate No 254630, filed 3 Jun 68, published 11 Mar 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A294 P)

Translation: This Author's Certificate introduces a device for discrete measurement of signal phase. The device contains frequency dividers based on flip-flops, and also logic circuits. As a distinguishing feature of the patent, the accuracy of phase measurement is improved, and speed requirements for the divider of the first digital place are lowered by connecting the output of the input signal shaper through an inhibit circuit to the counter input of the flip-flop for the first digital place of the frequency divider and simultaneously to the input of the control device. One of the outputs of the control device is connected to the input of the inhibit circuit, and the second output is connected to one of the outputs of an OR circuit whose second output is connected to the output of the divider for the first digital place. The output of the OR circuit is connected to the input of the frequency divider for the next digital place. E. L.

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- 118 -

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--EFFECT OF SOME TECHNOLOGICAL PARAMETERS OF AN OXYGEN CONVERTER MELT  
ON THE STABILITY OF TAR DOLOMITE MAGNESITE LINING -U-  
AUTHOR-(05)-KUZNETSOV, A.F., SHAM, P.I., PASHCHENKO, N.K., BOLSHAKOV,  
V.A., ZELTSER, I.G.  
COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(2), 35-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL OXYGEN CONVERSION, SLAG, PIG IRON, CORROSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0873

STEP NO--UR/0131/70/035/002/0035/0039

CIRC ACCESSION NO--AP0118045

UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0118045

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS A LINING FOR O CONVERTERS IN THE REFINING OF PIG IRON, A MIXT. OF 65PERCENT DOLOMITE AND 35PERCENT MAGNESITY, TO WHICH WAS ADDED 5PERCENT TAR CONTG. 70-5PERCENT PITCH, WAS USED. THE CORROSION OF THE LINING DURING EXPLOITATION IS CONNECTED WITH DECARBONIZATION OF THE WORKING LAYER AND DIFFUSION OF OXIDES FROM THE SLAG INTO THE LINING, WITH FORMATION OF EASY MELTING COMPDS. (FERRITES, BROWNMILLERITE, ETC.). MOST INFLUENCE IN THESE PROCESSES HAVE FE OXIDES, AS THEY EFFECT THE DECARBONIZATION; CA FERRITES FORMED HAVE A LOW M.P. AN INCREASE OF THE TEMP. OF THE MELT ACCELERATES THE CORROSION CAO CONTENT OF THE SLAG, AS A CONSEQUENCE OF A DECREASE OF OTHER COMPDS. PRESENT. THE RATE OF DISSOLN. OF CAO IS NOT CONST. DURING BLOWING AND DEPENDS ON THE FE OXIDE CONTENT OF THE SLAG. IN ORDER TO PROMOTE THE RATE OF DISSOLN. OF CAO, IT IS RECOMMENDED TO ADD A 2ND PORTION OF CAO BEFORE THE INTENSIVE DISSOLN. OF THE 1ST PORTION BEGINS, THAT IS 4-6 MIN AFTER BEGINNING OF THE BLOWING. THE RATE OF DISSOLN. OF THE LINING DURING THE 1ST HALF OF THE PERIOD OF BLOWING IS CONST., DURING THE 2ND HALF OF THE PERIOD IT INCREASES, DEPENDENT ON TEMP. AND FE OXIDE CONTENT OF THE SLAG. OVER OXIDN. OF THE SLAG DURING THE 2ND PERIOD IS UNDESIRABLE. THE CORROSION OF THE LINING DEPENDS ON THE BLOWING REGIME THE BLOW.           FACILITY: ZHDANOV. MET. INST., ZHDANOC, USSR.

UNCLASSIFIED

AP9019937

IAA 7/69 4R/0382

A69-29915 #

INFLUENCE OF THE VELOCITY DIAGRAM ON THE ELECTRIC FIELD INDUCED BY AN ELECTRICALLY CONDUCTING FLUID FLOWING THROUGH A CIRCULAR CHANNEL IN THE FRINGE FIELD OF A UNIDIRECTIONAL INDUCTOR [O VLIJANIÍ EPIJURY SKOROSTEI NA ELEKTRICHESKOE POLE, INDUTSIROVANNOE PRI TECHENII ELEKTROPROVODIASHCHEI ZHIDKOSTI V KRUGLOM KANALE V POLE RASSELIANIIA ODNOSTORONNEGO INDUKTORA].

V. B. Bel'shakov and I. M. Korshunskii.

Magnitnaya Gidrodinamika, vol. 5, Jan.-Mar. 1969, p. 111-116.

In Russian.

Discussion of the influence of the velocity distribution in a circular channel on the electric field at the channel walls for the axisymmetric flow of an electrolyte in the magnetic field of an E-shaped inductor mounted at the external side of the channel wall. A solution is obtained under the assumptions that the inductor is infinite and that the dynamic effects and the distortion of the magnetic field are negligible.

V.P.

BB  
1/1

1933 1162

USSR

UDC 669.01:621.78

BOL'SHAKOV, V. I., PIKHOV, D. P., ORLOV, L. G., TYLKIN, M. A., ZOTEYEV,  
V. S., and BORKOVSKIY, YU. Z.

"The Effect of Thermomechanical Treatment on the Impact Ductility, Crack  
Propagation, and Disintegration Viscosity"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4(82),  
Jul-Aug 73, p 32

**Abstract:** Results are presented of an investigation of the mechanical properties of 14Kh2GMR steel after the usual heat treated and after high-temperature thermomechanical treatment (HTMT). Tabulated repoint, relative elongation, relative contraction, fatigue limit, and impact ductility at various temperatures. HTMT was found to somewhat increase the strength characteristics of the steel. HTMT does not lower the plasticity, it substantially increases the impact strength at the expense of the increasing share of the work of crack propagation. The increase of structural strength of 14Kh2GMR steel by HTMT lasts up to a 650° C temper temperature. The creation of a stable substructure by hardening increases the resistance of the steel to brittle failure and decreases its susceptibility to stress concentrations. Two tables, four bibliographic references,

- 40 -

1/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--ELECTRON MICROSCOPIC STUDY OF THE DISLOCATION STRUCTURE OF INTERNAL  
AND SURFACE LAYERS OF DEFORMED SILICON IRON SINGLE CRYSTALS -U-

AUTHOR--(02)-BOLSHAKOV, V.I., ORLOV, L.G.

COUNTRY OF INFO--USSR

B

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 745-51

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ELECTRON MICROSCOPY, CRYSTAL DISLOCATION, METAL SINGLE  
CRYSTAL, IRON ALLOY, SILICON ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1287

STEP NO--UR/0181/70/012/003/0745/0751

CIRC ACCESSION NO--AP0116749

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116749

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD HAS BEEN DEVELOPED FOR THE PROTECTION OF ONE SURFACE OF SINGLE CRYSTAL SPECIMENS OF THE ALLOY FE-3.2PERCENT SI DURING ELECTROCHEM. THINNING TO PREP. SPECIMENS FOR OBSERVATION BY TRANSMISSION ELECTRON MICROSCOPY. THE METHOD WAS USED FOR INVESTIGATING THE DISLOCATION STRUCTURE OF SLIP BANDS IN SURFACE AND INTERNAL LAYERS OF PLANE CRYSTALS 0.5 MM THICK (DIRECTION OF THE BROAD FACE CLOSE TO (0 BAR 1 1)). THE SYSTEMS WITH MAX. STRESS WERE (BAR 2 31) (11 BAR 1) AND (BAR 1 21) (11 BAR 1). THE DISLOCATION STRUCTURES AT THE SURFACE AND IN THE VOL. OF THE CRYSTAL WERE QUITE DIFFERENT. IN THE LATTER CASE, STRONGLY TWINNED DISLOCATIONS WERE OBS., WITH A LARGE NO. OF STEPS AND MANY PRISMATIC LOOPS, WHILE JUST UNDER THE SURFACE ALL THESE DETAILS WERE ABSENT AND DISLOCATIONS WERE FOUND EITHER IN THE FORM OF LONG AND STRAIGHT LINES ALONG THE TRACES OF THE SLIP PLANES OR IN THE FORM OF SHURT SECTIONS LOCATED OBLIQUELY TO THE SURFACE OF THE OBJECT AND ALONG THE TRACES (BAR 2 31) AND (BAR 1 21). DIFFERENCES IN THE STRUCTURE OF THE SURFACE AND THAT OF THE INSIDE LAYERS ARE EXPLAINED BY THE FACT THAT SLIP BEGINS AT THE SURFACE AND IS DEVELOPED INTO THE CRYSTAL, SINCE THE PECULIARITIES OF THE STRUCTURE OBSU. FOR THE INTERNAL LAYERS SHOULD PENETRATE ONLY AT SUFFICIENTLY LARGE DISLOCATION FREE PATHS.

FACILITY: TSENT. NAUCH.-ISSLED. INST. CHERNOI MET. IM.

BARDINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 620.17

GALENKO, P. P., LOBASENOK, V. A., and BOL'SHAKOV, V. N., Dept. of Nondestructive Testing Physics, Academy of Sciences Belorussian SSR

"Study of Cyclic Deformation of Metals and Polymers"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 2, 1971, pp 134-136

**Abstract:** The leading role in departures from Hooke's law is played by plastic deformations caused by irreversible displacement in crystallites (for example, shear, twinning, dislocation, and so on). When metals and polymers undergo cyclic deformation (stretching-compression and sign-alternating twisting), even in the so-called elastic region these departures yield a hysteresis loop instead of the anticipated Hooke's straight line. A special stand was built to investigate sign-constant and cyclic deformations. Torsion of cylindrical and tubular specimens was selected as the type of deformation to be investigated for polymers and metals. This type of deformation yields shearing in a purer state than other deformation types -- elongation, compression, and bending. The torque applied to the test specimens was measured by the deformation of an elastic element. The specimen and the elastic element were rigidly connected with a special coupling element, forming one system.

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GALENKO, P. P., et al., Doklady Akademii Nauk BSSR, Vol 15, No 2, 1971,  
pp 134-136

The mechanism for photographic recording of the loading curve and the hysteresis loop consisted of mirrors with illuminators, a tape drive mechanism, photographic tracing paper, and an electronic module for remote control of the stand. The stand is designed for testing small specimens at different temperatures and over a wide range of deformation rates.

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Acc. Nr.: AM 0105458Ref. Code: UR0000Bol'shakov, V. S.Transformation of River Waters in the Black Sea (Transformatsiya rechnykh vod  
v chernom more) Kiev, Naukova Dumka, 1970, 328 pp (SL:1959)

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REEL/FRAME  
19880450

Acc. Nr.: AM 0105458

The monograph contains results of investigation of transformation of river waters in estuary regions of the Black Sea, the north-western and "Kil-khidskiy" regions. The investigations were based on general and special oceanographic observations conducted in 1948-1965 by expeditions of the USSR and other Black-Sea countries...

The book was written for hydrobiologists and sea hydrologists, employees of the fishing industry, college professors and students.

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19880451

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UNCLASSIFIED

PROCESSING DATE--16OCT70  
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TITLE--OBSERVATION SYSTEM OF THE 70-GEV PROTON SYNCHROTRON -U-  
AUTHOR--(05)-BOLSHAKOV, YU.D., GERTSEV, K.F., IVANOV, YU.S., KUZMIN, A.A.,  
RUBCHINSKIY, S.M.  
COUNTRY OF INFO--USSR

B

SOURCE--(CERN-TRANS-69-23) NTD-6827

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROTON ACCELERATOR, SYNCHROTRON, PARTICLE MOTION, TRAJECTORY  
MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0787

STEP NO--UR/0000/70/000/000/0001/0012

CIRC ACCESSION NO--AM0101160

UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AM0101160

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEAM ORBIT OF THE IHEP SYNCHROTRON IS DETERMINED BY MEASURING THE DISPLACEMENT OF THE CENTER OF SPECIAL SYSTEM IS DESCRIBED WHICH ALLOWS A DETERMINATION OF THE POSITION OF THE CLOSED ORBIT, AS WELL AS THE FREQUENCY, AMPLITUDE, AND PHASE OF THE COHERENT BETATRON OSCILLATIONS. THE EQUIPMENT ASSURES A PRECISION MEASUREMENT OF THE ORBIT DEPALCEMENT OF PLUS 15 TO 71PERCENT PLUS 1 MM FOR AN INTENSITY OF 10 PRIME11 TO 10 PRIME14 PROTONS AND 10 TO 15PERCENT FOR AN INTENSITY OF 10 PRIME10 PROTONS. FACILITY: ADADEMIYA NAUK SSSR, MOSCOW. RADIOTEKHNIKESKII INSTITUT.

UNCLASSIFIED

BOL'SHAKOVA, G.V.

JMK  
59263  
U-73

XIV-15. STRESSES AND STRUCTURAL DEFECTS IN EPITAXIAL SOLID SOLUTIONS OF GaAs

[Article by V. M. Ustinov, B. G. Zakharov, G. V. Bol'shakova, A. A. Novitskii, Poltava, Novosibirsk, L.I. Shmelev, Iu. Protopopov, Kursk, I. Sintseva, Poltava, Dzhvandzhiyev, Krasnogorsk, Riga, Lithuania, 15-17 June 1977, p. 503]

A study was made of the causes of the occurrence of stresses and structural defects in epitaxial layers of solid solutions of GaAs. Measurements were made of the bending of the structures at different temperatures, and the difference of the coefficients of thermal expansion of the substrate and the film with different composition of the solid solutions was determined. The dislocation structure of the solid solutions was investigated.

It was demonstrated that the stresses causing bending of the structures were caused both by the difference of coefficients of thermal expansion of the film and the substrate and inhomogeneity of the distribution of the composition of solid solutions with respect to the epitaxial layer. The allotropic transition structure of the epitaxial solid solutions was basically caused by local inhomogeneities of the composition and also the stresses as a result of the difference in the coefficient of thermal expansion of the film and the substrate.

Acc. Nr.: AP0029332

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 5-9

GENIMYCIN, A MEMBER OF A NEW GROUP OF ANTIFUNGAL PENTAENIC  
ANTIBIOTICS

Severinets, L.Ya.; Yefimova, V.M.; Bol'shakova, L.O.;  
Karnaushkina, A.I.; Solov'yev, S.N.; Yegorenkova, A.N.;

Leningrad Institute for Antibiotics

A soil culture LIA-O174 was isolated and classified as belonging to the genus of Actinosporangium. An antibiotic named genimycin was recovered from the fermentation materials of this culture. By a number of physico-chemical properties the antibiotic was believed to belong to a new group of pentaenic antibiotics. Genimycin possesses antifungal activity, which is 10-100 times higher than that of pentaens from other groups.

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REEL/FRAME

6

19680904

USSR

UDC: 621.314.2

ZIMODRO, A. F., SHUBIN, V. V., BOL'SHAKOVA, L. P., POZNYAK, V. I.

"Quality Control of Ferrite Cores for Pulse Microtransformers"

Elektron. tekhnika. Nauchno-tekh. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 128-133 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V368)

Translation: The authors discuss some problems of sorting out ferrite cores for pulse microtransformers. The selected method of inspection is substantiated and experimental data are presented. Resumé.

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